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AUTHOR Gulley, S. Beverly: And Others
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ABSTRACT

The purpose of this study was to develop a reliable instrument for observing the behaviors of caregivers in infant day care centers. Identification of custodial and developmental tasks of infant caregivers was accomplished by a review of the relevant literature, narrative recordings of infant caregivers, and verification of the tasks by a panel of experts. Once identified, the task items were operationally defined, assigned codes and validated. The instrument was designed, codes were positioned in check list form, and a recording technique was selected to ensure reliability. Data were collected and analyzed. Results of the reliability sessions indicate that the Behavioral Observation System of Infant Caregivers (BOSIC) is a valid and highly reliable research tool for assessing infant caregiver behaviors. The frequency estimates generated by BOSIC allow accurate assessment of the percentage of time spent on tasks by infant caregivers. (Author/MP)

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Final Report

The Development of a Reliable Instrument for Observing the Behaviors of Infant Caregivers - BOSIC

S. Beverly Gulley
E. Jacqueline Eddleman
Catherine M. D'Amico

Southern Illinois University
Carbondale, Illinois

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ABSTRACT

The purpose of the study was to develop a reliable instrument for observing the behaviors of caregivers in infant day care centers. Identification of custodial and developmental tasks of infant caregivers was accomplished by a review of the relevant literature, narrative recordings of infant caregivers, and verification of the tasks by a panel of experts. Once identified, the task items were operationally defined, assigned codes and validated. The instrument was designed, codes were positioned in check list form, and a recording technique was selected to attain reliability. Data were collected and analyzed. Results of the reliability sessions indicate BOSIC is a valid and highly reliable research tool for assessing infant caregiver behaviors. The frequency estimates generated by BOSIC allows accurate assessment of the percentage of time spent on tasks by infant caregivers. To this end the Behavioral Observation System of Infant Caregivers (BOSIC) was developed.

INTRODUCTION

Problem

The problem of this study was to design a reliable instrument to facilitate the study of the management of the variety of custodial and developmental care tasks in an infant day care center.

Background

The need for quality child care facilities for children under three is increasing (Fein and Clarke-Stewart, 1973; Connell, 1978). Increasingly women with very young children are engaged in out-of-home work and seek day care services for very young children.

Parallel to the need for quality infant day care services is the need to examine and identify what constitutes quality care in the daily on-going operations of infant day care centers (Honig and Lally, 1973; Rosenbluth, 1973.) Of prime importance is the need to systematically relate what we know about what is known to be good for infants to what is done (Fein and Clarke-Stewart, 1973). The first step in the process is to acquire the knowledge so that effective practices can be established.

An extensive review of the literature revealed that several evaluation instruments have been developed to compare caregivers on a variety of dimensions. They included: (1) adhering to a particular program - language program vs. cognitive program (Seifert, no date) and autonomy program vs. language program (Kuzma, 1970); (2) occurrence of certain behaviors, teacher's language via Skinnerian framework of learning (Bloom and Wiensky, 1967) and infant/toddler caregiver behaviors (Honig and Lally, 1973); and (3) adult/child ratios influencing infant development (Fowler, 1975).

Research designs most frequently used were mail surveys, personal interviews and direct observation. Rahmlow and Klehn (1967) designed a mail survey to identify major tasks and knowledges associated with work in child care occupations. Shapiro (1974) implemented a longitudinal study assessing infant day care environments. Gottfried and Seary (1973) designed an observational technique to identify peer-social behaviors in preschoolers. Honig and Lally (1973) developed an observational checklist of caregiver behaviors in an infant/toddler day care setting. Strain & Vietz (1974) developed an observational system for assessing behavior sequences between infant and mother.

Although a review of the literature revealed that a variety of evaluation measures incorporating several different research designs have been developed, only one instrument provided a comprehensive measure of caregiver behaviors in an infant/toddler day care center. Honig and Lally (1973 and 1974) designed two instruments, Assessing the Behaviors of Caregivers, ABC-I and ABC-II, to assess the behaviors of infant caregivers by measuring actual behaviors. ABC-I and ABC-II respectively reflect program goals for children under 18 months and children 18 to 36 months.

ABC-I and ABC-II are brief, economical instruments with high interobserver reliability (84% and 88%) and are designed to measure and monitor specific program goals. The data collection procedure consists of four two-minute periods with one two-minute rest period to complete a ten minute cycle. The cycle is repeated three times in an half-hour session, allowing for a maximum of 12 tallies of each individual behavior every half hour.

Although ABC-I and ABC-II were clearly identified as the most comprehensive checklists of infant and toddler caregiver behaviors, several modifications seemed appropriate to the future development of an observational instrument. This study, therefore, sought to (1) provide a more comprehensive list of actual caregiver behaviors, (2) to operationally define the behaviors, (3) to modify the recording procedure, and (4) to design a reliable instrument based on the aforementioned characteristics.

This research is rooted in the premise that caregivers perform many tasks, both custodial and developmental, which are necessary and important to the development of the child. It also recognizes that caring for infants is a major job requiring many tasks that are primarily custodial in nature. The demands of the job can easily lead caregivers to provide custodial service primarily to the neglect of developmental tasks.

The primary objective of the study was to provide a means to assist caregivers in identifying tasks they performed so that a composite picture of performance could be established for actual operations in an infant day care center. The intent was to develop a means for assessing the degree of custodial and developmental tasks actually performed for the purpose of facilitating more appropriate managerial procedures.

For the above reasons, a Behavioral Observation System of Infant Caregivers (BOSIC), was developed. It is a brief, economical instrument with high-interobserver reliability (92.6) which is capable of reflecting, measuring, and monitoring the program goals for infants from birth to 36 months.

Review of Related Literature

A review of the literature revealed that the assessment of child care services outside the home has been approached in one of three ways - directly, indirectly, or a combination of the two.

The indirect approach consists of the writing of definitions, goals and objectives, programming schedules, curriculum and organization/management guides to direct caregivers as to the values, standards, and developmental theories recommended for high quality day care. Keister (1972) provided eleven definitions of quality infant care. Fitzgerald (1972) identified goals and objectives for trainees in infant/toddler day care. Taylor and Ryan (1973) identified three major physical areas where programming occurred for infants in day care.

Honig (1974) designed a curriculum derived from Piagetian and Ericksonian theory for infants and toddlers in group care. Storm (1975) designed an infant stimulation curriculum that identified and described behaviors indicative of the progressive stages of development. Harold (1976) raised significant questions regarding actual caregiver behaviors. Herbert-Jackson, et.al. (1977) presented a complete guide to organizing and managing infant day care centers.

The second method of assessing out-of-home child care arrangements, the direct approach, is an observational process. It involves noting actual on-going behaviors, as well as describing behaviors of a single subject or interactions among many subjects. Weir (no date) studied the language behavior of infant caregivers and developed "The Caregiver Language Observation Instrument." Honig, Caldwell and Tannenbaum (1970) designed an observational technique for patterning responses for adults and children. Fiene (1972) investigated time spent verbalizing and time spent in movement between activity areas with children between the ages of 28 and 54 months in either family or group day care. Morgan, Harmon and Bennett (1976) designed an observational system for recording and coding behaviors of infants during spontaneous play. Ross and Zimilies (1976) studied verbal behavior in children to construct an observational procedure to record differentiated child behavior.

The third method of assessing child care arrangements, the combination approach, incorporates goals, objectives, values, standards and theories together with an observational process to assess if and/or how ongoing behaviors actualize specific goals and center objectives. Bloom and Welensky (1967) developed an observational scale with four language dimensions based on Skinnerian theory. Kuzma (1970) used direct observation of teachers to determine whether two programs, autonomy and language, differ as defined while studying the effects of three preschool intervention programs on the development of autonomy in Mexican-American and Negro children. Honig and Lally (1973-74) developed two observational checklists consisting of seven categories with 40 items for the purpose of objectively studying

caregivers of infants from birth to 18 months (ABC-I) and toddlers 18 to 36 months (ABC-II).

A review of the literature revealed that an observational system comprehensive or sensitive enough to measure all tasks occurring in infant group care centers was lacking. It did reveal that the development of such a system would require the combination approach of assessing child care arrangementsoutside the home.

The literature was also reviewed to assess methods of developing observational systems. Weik (1968) defined the observational method as "selection, recording, and encoding of that set of behaviors and settings concerning organisms 'in situ' which is consistent with empirical aims" (p. 360). Bijou, Peterson, and Ault (1968) identified procedures involved in conducting a descriptive field investigation when developing an observational system. Furst and Hill (1971) described recommendations for developing an observational instrument. Herbert and Attridge (1975) developed a set of criteria to guide users and developers of observational systems and manuals.

Alevizos, Berck, Callahan, and Campbell (no date) examined appropriate recording techniques. They included: (1) continuous recording, the observer prepares a narrative describing in sequence all behaviors observed; (2) event recording, the observer counts each occurrence of the behavior during a predetermined time period; (3) duration recording, the observer measures the length of time the behavior requires; (4) face validity, the degree to which the system appears to describe the categories it was designed to.

Bijou, et.al. (1968) identified two types of validity to be measured. They are: (1) instrument reliability, the degree to which the system yields the results when observed at different times by the same observer;and (2) inter-observer reliability, the degree to which two observers agree on occurrence or non-occurrence of behaviors observed at the same time for the same population.

Objectives

To analyze and ascertain the tasks performed by infant caregivers, data were collected, classified, and analyzed to:

Generate a continuous measurement of infant caregiver behaviors, allowing a maximum of 90 tallies for each individual behavior every half hour.

Change observed caregivers every 30 seconds.

Allow for the stimulation of the five senses.

Be sensitive to caregiving tasks with the infant and the environment.

Account for interactions between parents and caregivers, administrative and business matters, and the personal needs of caregivers.

Provide a comprehensive list of 72 operationally defined tasks under 10 specific areas of infant day care management.

Limitations of the Study

This study was confined to identification of tasks performed by workers in three types of child care centers: (1) private infant day care center, (2) public-supported low-income infant day care center, and (3) university-supported infant day care center. In addition, it involved a comprehensive review of the literature, a narrative recording of performed infant tasks, and content validation by persons involved in infant day care.

Limitations of the Instrument

The instrument did not make allowances for ratio of infants to caregiver, sex of infants, or specific age of infants. It was designed to match the objectives of a high quality infant center using professional and paraprofessional caregivers, and as such is not a specific quality assessing tool.

Definitions

Infants are those children from birth to thirty-six months of age (Honig and Lally, 1974).

Infant day care is "any place where children under the age of three years are cared for in groups by warm, understanding, responsible adults" (Evans & Sala, 1972, p. xi).

Custodial care refers to the supervision and safety of children along with feeding, toileting and rest appropriate to the child's age (Learning Institute of North Carolina, 1974 and Zigler, 1972).

Developmental care refers to the custodial care of children along with a variety of opportunities for physical, social, and intellectual development (Zigler, 1972).

Infant caregivers are those trained individuals, who provide developmental care appropriate to the child's needs in a warm, understanding, generous manner.

Task is an activity constituting a distinct and necessary part of the work done by an employee. It is a work unit involving specific acts, procedures, techniques, and judgments.

Task Categories are combinations of interrelated tasks.

METHOD

Development of the Instrument

The first step in the process of the development of the instrument was identifying and defining the custodial and developmental tasks which take place in an infant care center. Identification of the tasks was a three step process involving: (1) a search of the literature (Gordon, 1970; Painter, 1971; Tranick and Greenfield, 1973; Uzgeris and Hunt, 1975; and White and Watts, 1973); (2) narrative recording of performed infant care tasks; and (3) content validation.

A comprehensive list of tasks a caregiver is likely to perform in an infant care center along with examples generated from the literature search and the narrative records were assessed by a panel of experts[1] involved in auxiliary infant care. The identification process yielded 72 items fitting into 10 categories to be defined.

The items were operationally defined in terms of observable behaviors (Bijou, et. al., 1968; Compton and Hall, 1972; and Ennis, 1964) and examples were provided. They were then submitted to a panel of experts[1] in auxiliary infant care for the purpose of eliminating problems of (1) confusability, the degree to which one behavior is mistaken as another, and (2) observer interference, the degree to which the observer's judgment interferes with observed behaviors and hinders high interobserver agreement (Herbert and Attridge, 1975).

The validation process for BOSIC included (1) content validity, (2) construct validity, (3) criterion-related validity, and (4) face validity. Content validity was verified by an assessment of the comprehensive list of caregiving tasks by a panel of experts[1].

[1]The panel of experts consisted of 6 identifiable infant day care center directors in Illinois, 6 university professors involved in infant day care, and 6 infant caregivers.

Construct validity was verified by a review of theories (e.g. Piaget, sensorimotor development tasks) which generated the items. Criterion-related validity was accomplished by comparing BOSIC to ABC-I and ABC-II. Finally, face validity was achieved by seeking feedback regarding the appropriateness of the categories and items from the panel of experts.

Interval recording was selected as the recording technique which would best achieve the purpose of the study. Interval recording lends itself to: (a) the recording of multiple behaviors for multiple subjects; (b) the recording of behaviors with highly variable frequencies; and (c) the recording of behaviors with uneasily determined beginning and end (McDowell, 1973).

The format of the instrument was a checklist with a coversheet for recording significant information (see Appendix A). An 8 1/2 x 11 sheet of paper was positioned side-ways, numbered 1-15 on both the upper and lower halves. Single or multiple alphabetic codes to represent the 72 items were arranged with their appropriate categories across both the upper and lower halves of the paper. Category labels were centered over each appropriate group of items. Heavy marked vertical dividing lines were used between categories and lightly marked ones in between groups of four items to facilitate eye contact with the correct code. Horizontal lines were placed every third line again to facilitate eye contact, and short horizontal lines were placed between the interval number (e.g. 1-15) and the first code to allow space for a short-hand label identifying the caregiver being observed. At the lower left-hand corner was a place for recording the (a) date of session, (b) initials of the observer, and (c) page number.

The cover page was a 5 1/2 by 11 sheet of paper with space for recording pertinent information: (a) date of session, (b) time of session, (c) center name, (d) number of children present, (e) number of caregivers present, (f) primary observer, (g) page number, and (h) reliability observer and reliability formula information used only during reliability sessions.

The final step in the development of the instrument was to measure inter-observer reliability. Two observers recorded independently and concurrently for 24 (35%) of the 68 observation sessions achieving 92.6% overall occurrence reliability and 99.9% overall nonoccurrence reliability. The following formula (Bijou et.al., 1968) was used:

$$\text{reliability} = \frac{\#\text{ of agreements (for occurrences and nonoccurrences)}}{\#\text{ of agreements} + \#\text{ of disagreements}} \times 100$$

Collection of the Data

Two observation sessions in the morning and two observation sessions in the afternoon were performed daily for 17 days. Each session was 45 minutes long with 15 sequential 30-second intervals, 20 seconds for observing followed by 10 seconds for recording (when a single occurrence of any item was recorded) yielding 90 tallies per session. A total of 68 sessions, yielding 6120 tallies, was conducted. Three caregivers were observed per session; caregiver focus was switched each interval.

A 45 minute pre-recorded cassette 20/10 second timing tape designating when to observe, when to record and interval number was used to facilitate the data collection process.

Each alphabetic code was assigned a number, 1 through 72, to facilitate computer analysis of data. Numeric code 73 was given to "observer out of environment" situations.

Analysis of Data

Analysis of the data focused on three major concerns: (1) reliability estimates, (2) category and item frequencies, and (3) estimates of caregiver differences.

Reliability estimates were calculated for (a) overall occurrences and non-occurrences, (b) average occurrences and non-occurrences across categories, (c) category occurrences and non-occurrences and (d) item occurrences and non-occurrences.

Frequencies were calculated for (a) the average session by category and (b) the average session by item. Session frequencies were converted to overall average percentages by computing the percent of all session intervals (i.e. 90) in which a given category or item occurred and averaging these values across the 68 sessions.

Caregiver differences were calculated across categories and item 73 (the numeric code for caregiver out of the environment). For each of the six caregivers of the possible sixteen most frequently observed, the session percentages were calculated by dividing the number of occurrence intervals for each category and item 73 by 30. Each caregiver was observed for 30 intervals of the total 90.

RESULTS

Observation Sessions

Data was collected for a total of 68 sessions during a period of 5 weeks.

Data Summary

Reliability estimates were calculated for (a) overall occurrences and non-occurrences, (b) average occurrences and non-occurrences across categories and (c) category occurrences and non-occurrences (see Table 1). Overall occurrence reliability for the system was 92.6% (SD=3.7%) and 99.9% (SD=.07%) for overall non-occurrences. Average occurrence reliability across categories was 90.9% (SD=3.95%) and 99.9% (SD=.11%) for non-occurrence. Category occurrences ranged from 94.5% (SD=3.8%) for "Caregiving tasks with infants" to 83.6% (SD=13.4%) for "Stimulation of Sensorimotor Development", with a non-occurrence reliability range of 99.7% (SD=22%) to 100% (SD=.07%).

Reliability estimates were calculated for (d) item occurrences and non-occurrences (see Table 2). Item reliability occurrences ranged from 55.6% (SD=50.9%) for "Play Completed" to 100% for a variety of items, averaging 90.7% (SD=11.7%). Non-occurrence reliability ranged from 96.9% (SD=15.2%) for "Dressing" to 100%, averaging 99.8% (SD=0.5%).

Frequencies were calculated for (a) the average session by category and (b) the average session by item (see Table 3). Considerable variety in the average caregiving time spent across categories is indicated, ranging from 1.4% for "Physical Development" to 25.2% for "Environmental Care."

Average session frequencies by item are listed (see Table 4). The average session frequencies by item indicated that all items were performed relatively infrequently and substantial variability existed across sessions without exception. "Imaginary Play-Completed" (4.0%) was the task performed most often and "Diapering/Toileting" (0.6%) was the task performed least often. No relationship was found between an item's reliability and its frequency of occurrence ($r = -.001$, n.s.).

Caregiver differences across categories and item 73 ("Caregiver Absent from Environment") were calculated. The results of a one-way ANOVA performed on the performance frequencies of individual caregivers grouped by category and item 73 indicated significant variability for "Stimulation of Language Development" ($F(5,128) = 4.708$, $p. < .001$), "Stimulation of Social-Emotional Development" ($F(5,128) = 7.851$, $p < .001$), and "Administration and Business Details" ($F(5,128) = 2.490$, $p. < .04$). This last variation was suspected to be due to a single caregiver engaged in a supervisory capacity.

TABLE 1

OBSERVER RELIABILITY FOR OVERALL AND CATEGORIES[a]

Category Label	Occurrence Reliability	Non-occurrence Reliability
Overall	92.6% (SD=3.7%)	99.9% (SD=.07%)
Language Development	90.3% (SD = 7.3%)	99.8% (SD = .18%)
Social-emotional Development	85.6% (SD=27.4%)	99.9% (SD=.13%)
Sensorimotor Development	83.6% (SD=13.4%)	100% (SD=.07%)
Sensory Stimulation	93.7% (SD=22.7%)	100% (SD=.06%)
Caregiving to Infants	94.5% (SD=3.8%)	99.7 (SD=.22%)
Physical Development	90.5% (SD=27.5%)	100% (SD=.50%)
Caregiving to Environment	89.1% (SD=7.5%)	100% (SD=.09%)
Parental Considerations	92.1% (SD=21.0%)	100% (SD=.31%)
Business Matters	96.0% (SD=11.0%)	100% (SD=.12%)
Personal Needs	93.6% (SD=15.6%)	99.9% (SD=.20%)
Across Categories[b]	90.9% (SD=3.95%)[c]	99.9% (SD=.11%)

[a]Computed as means for N=24 sessions

[b]Computed by averaging the mean reliability estimates for the 10 categories

[c]Computed as standard deviations of individual category reliabilities from the overall average reliability (i.e. across categories)

TABLE 2

OBSERVER RELIABILITY FOR ITEMS[a]

Item Number & Code	Occurrence Reliability	Non-occurrence Reliability
Language Development		
1 (V)	90.8% (SD=7.4%)	98.1% (SD=1.3%)
2 (C)	100% (SD=0.0%)	100% (SD=0.0%)
3 (P)	74.1% (SD=43.4%)	99.8% (SD=0.5%)
4 (OH)	--	100% (SD=0.0%)
5 (EX)	100% (SD=0.0%)	100% (SD=0.0%)
6 (LS)	100% (SD=0.0%)	100% (SD=0.0%)
7 (RD)	100% (SD=0.0%)	100% (SD=0.0%)
8 (SG)	100% (SD=0.0%)	100% (SD=0.0%)
Socio-emotional Development		
9 (A)	84.7% (SD=31.3%)	99.8% (SD=0.8%)
10 (AHA)	66.7%(SD=47.1%)	99.9% (SD=0.3%)
11 (AHP)	100% (SD=0.0%)	100% (SD=0.0%)
12 (CP)	--	100% (SD=0.0%)
13 (DE)	100% (SD=0.0%)	100% (SD=0.0%)
14 (ROP)	--	100% (SD=0.0%)
15 (PA)	--	100% (SD=0.0%)
16 (PC)	55.5% (SD=50.9%)	99.9% (SD=0.3%)

TABLE 2 (CONTINUED)

Item # & Code	Occurrence Reliability	Non-occurrence Reliability
Sensorimotor Development		
17 (OP)	100% (SD=0.0%)	100% (SD=0.0%)
18 (ME)	70% (SD=44.7%)	99.9% (SD=0.3%)
19 (IM)	100% (SD=0.0%)	100% (SD=0.0%)
20 (CA)	—	100% (SD=0.0%)
21 (PR)	84.7% (SD=31.3%)	99.9% (SD=0.4%)
22 (SP)	—	100% (SD=0.0%)
23 (NS)	—	100% (SD=0.0%)
Sensory Stimulation		
24 (SI)	100% (SD=0.0%)	100% (SD=0.0%)
25 (HE)	93.3% (SD=25.8%)	100% (SD=0.2%)
26 (TO)	80.0% (SD=44.7%)	100% (SD= 0.2%)
27 (SM)	—	100% SD=0.0%)
28 (TA)	—	100% SD=0.0%)
Caregiving to Infant		
29 (FD)	97.6% (SD=5.0%)	99.7% (SD=0.7%)
30 (DC)	100% (SD=0.0%)	100% (SD=0.0%)
31 (DT)	96.5% (SD=6.8%)	99.7% (SD=0.5%)
32 (DR)	92.3% (SD=27.7%)	96.9% (SD=15.2%)
33 (NH)	92.2% (SD=16.5%)	99.9% (SD=0.4%)
34 (B)	—	100% (SD=0.0%)
35 (SL	98.5% (SD=5.5%)	100% (SD=0.2%)
36 (PS)	93.8% (SD=5.5%)	97.9% (SD=2.3%)
37 (EY)	66.6% (SD=44.4%)	99.7% (SD=0.6%)

TABLE 2 (CONTINUED)

Item # & Code	Occurrence Reliability	Non-occurrence Reliability
38 (RK)	96.9% (SD=6.6%)	99.8% (SD=0.6%)
Physical Development		
39 (LM)	90.5% (SD=27.5%)	99.9% (SD=0.5%)
Caregiver to Environment		
40 (PMF)	92.9% (SD=18.2%)	99.9% (SD=0.5%)
41 (STF)	72.7% (SD=46.7%)	99.9% (SD=0.4%)
42 (SVF)	83.3% (SD=33.3%)	99.8% (SD=0.5%)
43 (VA)	—	100% (SD=0.0%)
44 (DST)	—	100% (SD=0.0%)
45 (SWP)	100% (SD=0.0%)	100% (SD=0.0%)
46 (SCB)	—	100% (SD=0.0%)
47 (ND)	100% (SD=0.0%)	100% (SD=0.0%)
48 (LD)	80% (SD=44.7%)	100% (SD=0.2%)
49 (CE)	—	100% (SD=0.0%)
50 (CT)	100% (SD=0.0%)	100% (SD=0.0%)
51 (CC)	100% (SD=0.0%)	100% (SD=0.0%)
52 (CDT)	61.5% (SD=50.6%)	99.8% (SD=0.5%)
53 (CTS)	93.9% (SD=50.6%)	99.9% (SD=0.3%)
54 (SC)	100% (SD=0.0%)	100% (SD=0.0%)
55 (RT)	—	100% (SD=0.0%)
56 (OPA)	89.3% (SD=22.3%)	99.8% (SD=0.5%)
57 (PSA)	90.6% (SD=25.6%)	99.8% (SD=0.5%)
58 (HC)	66.6% (SD=57.7%)	100% (SD=0.2%)
59 (OMW)	85.8% (SD=27.9%)	99.8% (SD=0.5%)

TABLE 2 (CONTINUED)

Item # & Code	Occurrence Reliability	Non-occurrence Reliability
60 (WPC)	86.4% (SD=11.8%)	98.5% (SD=1.4%)
61 (FA)	100% (SD=0.0%)	100% (SD=0.0%)
Parental Considerations		
62 (AR)	77.7% (SD=38.5%)	99.8% (SD=0.9%)
63 (DP)	100% (SD=0.0%)	100% (SD=0.0%)
64 (PV)	93.3% (SD=14.9%)	100% (SD=0.2%)
Business Matter		
65 (GC)	93.7% (SD=21.3%)	100% (SD=0.0%)
66 (CC)	100% (SD=0.0%)	99.7% (SD=0.5%)
67 (MI)	—	100% (SD=0.0%)
68 (MO)	—	100% (SD=0.0%)
Personal Needs		
69 (J)	89.4% (SD=21.2%)	99.7% (SD=0.7%)
70 (PC)	97.8% (SD=7.9%)	99.9% (SD=0.5%)
71 (INS)	100% (SD=0.0%)	100% (SD=0.0%)
72 (ET)	100% (SD=0.0%)	100% (SD=0.0%)
73 OUT	97.3% (SD=10.5%)	99.8% (SD=0.7%)

[a]Computed as means for N=24 sessions

—line drawn through the occurrence reliability column for an item indicates that item was not observed as occurring only during the 24 reliability sessions.

TABLE 3

FREQUENCIES OF AVERAGE SESSION BY CATEGORY

Category Number & Label	Average Frequency[a]	SD
1. Language Development	15.8%	6.26%
2. Social-emotional Development	2.9%	7.27%
3. Sensorimotor Development	23.9%	7.78%
4. Sensory Stimulation	13.4%	4.98%
5. Caregiving to Infants	11.9%	4.57%
6. Physical Development	1.4%	1.43%
7. Caregiving to Environment	25.2%	7.27%
8. Parental Considerations	7.3%	3.06%
9. Business Matters	9.9%	4.14%
10. Personal Needs	8.4%	4.05%

[a]These frequencies represent average session percentages of intervals in which occurrences for related items scores (N=68 sessions).

TABLE 4

FREQUENCIES OF AVERAGE SESSION BY ITEM

Item Number & Code	Average Frequency[a]	SD
Language Development		
1 (V)	1.8%	1.62%
2 (C)	2.2%	1.68%
3 (P)	1.8%	1.42%
4 (OH)	1.7%	1.35%
5 (EX)	2.6%	1.79%
6 (LS)	1.7%	1.26%
7 (RD)	1.9%	1.62%
8 (SG)	2.1%	1.70%
Social-emotional Development		
9 (A)	1.7%	1.52%
10 (AHA)	2.5%	1.62%
11 (AHP)	2.6%	1.53%
12 (CD)	2.3%	1.60%
13 (DE)	2.8%	1.81%
14 (ROP)	2.8%	1.57%
15 (PA)	3.2%	2.08%
16 (PC)	4.0%	2.02%

TABLE 4 (CONTINUED)

Item # & Code	Average Frequency	SD
Sensorimotor Development		
17 (OP)	3.7%	1.99%
18 (NE)	2.6%	1.70%
19 (IN)	3.8%	2.18%
20 (CA)	3.3%	1.93%
21 (PR)	2.6%	1.95%
22 (SP)	3.5%	1.90%
23 (NS)	3.5%	2.13%
Sensory Stimulation		
24 (SI)	2.6%	2.0%
25 (HE)	2.5%	1.80%
26 (TO)	2.8%	2.18%
27 (SN)	2.7%	1.80%
28 (TA)	2.8%	1.88%
Caregiving to Infants		
29 (FD)	2.6%	1.76%
30 (DC)	1.3%	1.34%
31 (DT)	0.6%	0.80%
32 (DR)	0.9%	0.95%
33 (WH)	1.2%	1.04%
34 (B)	0.9%	0.96%
35 (SL)	1.1%	1.29%
36 (PS)	1.4%	1.20%
37 (EY)	1.1%	1.15%

TABLE 4 (CONTINUED)

Item # & Code	Average Frequency	SD
38 (RK)	0.9%	0.04%
Physical Development		
39 (LM)	1.4%	1.43%
Caregiving to Environment		
40 (PMF)	1.4%	1.23%
41 (STF)	0.9%	1.00%
42 (SVF)	0.7%	0.97%
43 (VA)	0.7%	0.76%
44 (DST)	0.7%	1.11%
45 (SWD)	1.1%	1.00%
46 (SCB)	1.0%	0.95%
47 (WD)	0.8%	1.04%
48 (LD)	1.1%	0.96%
49 (CE)	0.8%	0.91%
50 (CT)	0.8%	1.19%
51 (CC)	0.8%	0.98%
52 (CDT)	0.9%	1.00%
53 (CTS)	0.9%	1.15%
54 (SC)	0.8%	0.89%
55 (RT)	0.9%	1.10%
56 (OPA)	1.4%	1.32%
57 (PSA)	1.5%	1.36%
58 (HC)	1.1%	1.27%
59 (OMW)	2.5%	2.05%

TABLE 4 (CONTINUED)

Item # & Code	Average Frequency	SD
60 (WPC)	1.7%	1.65%
61 (FA)	2.9%	2.23%
Parental Considerations		
62 (AR)	2.5%	1.86%
63 (DP)	2.0%	1.77%
64 (PV)	2.8%	2.14%
Business Matters		
65 (GC)	2.6%	1.98%
66 (CC)	1.9%	1.60%
67 (MI)	2.9%	2.26%
68 (MO)	2.5%	2.02%
Personal Needs		
69 (J)	2.1%	1.59%
70 (PC)	2.8%	2.04%
71 (INS)	1.8%	2.04%
72 (ET)	1.7%	1.92%
73 (OUT)	2.8%	2.12%

[a]These frequencies represent mean session percentages of intervals in which occurrences were scored (n=68 sessions).

SUMMARY

The purpose of the study was to develop a reliable instrument for observing the behaviors of caregivers in infant day care centers. Identification of custodial and developmental tasks of infant caregivers was accomplished by a review of the relevant literature, narrative recordings of infant caregivers, and verification of the tasks by a panel of experts. Once identified, the task items were operationally defined, assigned codes and validated.

The instrument was designed, codes were positioned in check list form, and a recording technique was selected to attain reliability. Data were collected and analyzed. To this end the Behavioral Observation System of Infant Caregivers (BOSIC) was developed (see Appendix B).

CONCLUSIONS

Results of the reliability sessions indicate BOSIC is a valid and highly reliable research tool for assessing infant caregiver behaviors (see Tables 1 and 2). The frequency estimates generated by BOSIC allows accurate assessment of the percentage of time spent on tasks by infant caregivers (see Tables 3 and 4).

RECOMMENDATIONS

The development of BOSIC is one step in the process of studying infant caregiver behaviors for the purpose of improving auxiliary care of infants. Further refinement is needed. It is recommended that allowance for recording information such as age and sex of infant and number of infants the observed caregiver is attending would enhance the instrument. In addition, it is recommended that questions such as "Where is the task performed?", "Why is the task being done?" and "How is it being done?" be addressed in an instrument. It is also recommended that an acceptable range of variation among caregivers in the quality and amount of care they provide be identified.

DISCUSSION

BOSIC can be used for a variety of purposes. It can serve as a guide for parents who are looking for a quality infant care center since the list of behaviors was generated from objectives relative to quality care. It can be used to evaluate an existing program and/or to provide direction for a new one. It can help point out voids in programming. It can be used to teach and/or improve the performance of caregivers. It can be used by infant center supervisors or caregivers to address basic management questions.

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Appendix A

Code Sheet for

Assessing Reliability

Behavioral Observation System
for Infant Caregivers
BOSIC

Date: _____ Primary Observer: _____

Time: _____ Reliability observer: _____

Center: _____ Reliability %: _____

No. of children present: _____ Reliability Formula:

No. of caregivers present: _____ $\frac{\text{No. of Agreements}}{\text{No. of Agreements + No. of Disagreements}} \times 100 =$ _____

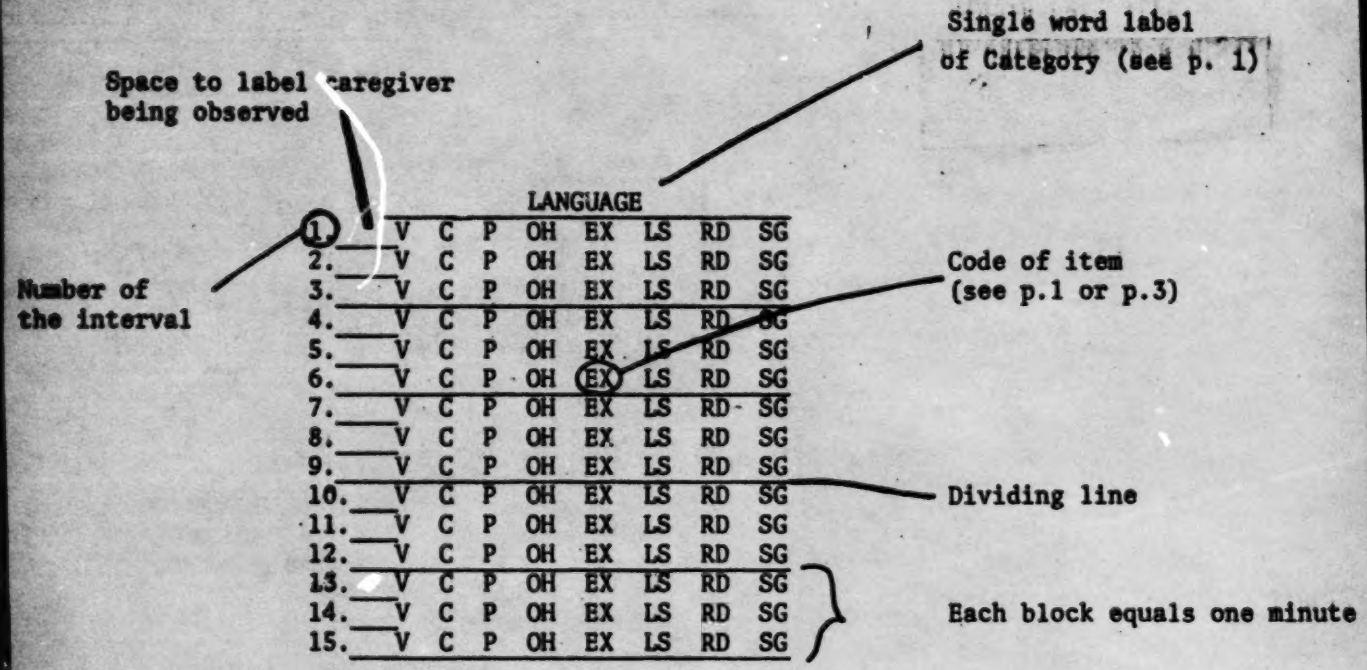
	LANGUAGE					SOCIAL-EMOTIONAL						SENSORIMOTOR							SENSES					CARE-INFANTS									
1.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	1.
2.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	2.
3.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	3.
4.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	4.
5.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	5.
6.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	6.
7.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	7.
8.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	8.
9.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	9.
10.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	10.
11.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	11.
12.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	12.
13.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	13.
14.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	14.
15.	V	C	P	OH	EX	LS	RD	SG	A	AHA	AHP	CP	DE	ROP	PA	PC	OP	ME	IM	CA	PR	SP	NS	SI	HE	TO	SM	TA	FD	DC	DT	DR	WH	B	SL	PS	EY	RK	15.

	PHYS				CARE-ENVIRONMENT																		PARENTS			ADMIN.				PERSONAL				
1.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	1.
2.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	2.
3.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	3.
4.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	4.
5.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	5.
6.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	6.
7.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	7.
8.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	8.
9.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	9.
10.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	10.
11.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	11.
12.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	12.
13.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	13.
14.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	14.
15.	LM	PMF	STF	SVF	VA	DST	SWP	SCB	WD	LD	CE	CT	CC	CDT	CTS	SC	RT	OPA	PSA	HC	OMW	WPC	FA	AR	DP	PV	GC	CC	MI	MO	J	PC	INS	ET	15.

A12

PAGE:_____IN'T.:____DATE:_____

Explanation of Observation Checklist:


Space to label caregiver being observed
Single word label of Category (see p. 1)
LANGUAGE
Number of the interval
Code of item (see p.1 or p.3)
Dividing line
Each block equals one minute
1. V C P OH EX LS RD SG
2. V C P OH EX LS RD SG
3. V C P OH EX LS RD SG
4. V C P OH EX LS RD SG
5. V C P OH EX LS RD SG
6. V C P OH EX LS RD SG
7. V C P OH EX LS RD SG
8. V C P OH EX LS RD SG
9. V C P OH EX LS RD SG
10. V C P OH EX LS RD SG
11. V C P OH EX LS RD SG
12. V C P OH EX LS RD SG
13. V C P OH EX LS RD SG
14. V C P OH EX LS RD SG
15. V C P OH EX LS RD SG

Page: (1 of 6) In't: [Initial of (observer)] Date: (Of Observation)

Appendix B

Behavioral Observation System of Infant Caregivers

CATEGORY TITLES	ITEM TITLES	CODES
I.	STIMULATION OF LANGUAGE DEVELOPMENT	
	1. Encourages vocalization	(V)
	2. Converses, chats with children	(C)
	3. Praises of encourages	(P)
	4. Offers help	(OH)
	5. Gives explanations	(EX)
	6. Labels sensory experiences	(LS)
	7. Reads to children	(RD)
	8. Sings with and/or to children	(SG)
II.	STIMULATION OF SOCIAL-EMOTIONAL DEVELOPMENT	
	9. Reinforces socially acceptable ways to get and maintain the attention of adults and reinforces the use of adults as resources	(A)
	10. Affords and allows expression of both affection and hostility to adults	(AHA)
	11. Affords and allows expression of both affection and hostility to peers	(AHP)
	12. Allows competition among peers	(CP)
	13. Encourages and reinforces self-praise and demonstration of pride in one's accomplishments	(DE)
	14. Encourages and reinforces adult role-playing behavior or expression of the desire to grow-up	(ROP)
	15. Play attempted	(PA)
	16. Play completed	(PC)
III.	STIMULATION OF SENSORIMOTOR DEVELOPMENT	
	17. Object permanence	(OP)
	18. Means and ends	(ME)
	19. Imitation	(IM)
	20. Causality	(CA)
	21. Prehension	(PR)
	22. Space	(SP)
	23. New Schemata	(NS)
IV.	STIMULATION OF THE SENSES	
	24. Sight	(SI)
	25. Hearing	(HE)
	26. Touch	(TO)
	27. Smell	(SM)
	28. Taste	(TA)
V.	CAREGIVING TASKS WITH INFANTS	
	29. Feeding	(FD)
	30. Diaper check	(DC)
	31. Diapering, toileting	(DT)
	32. Dressing, undressing	(DR)
	33. Washes, cleans-up	(WH)
	34. Bathes	(B)
	35. Sleep	(SL)
	36. Physical shepherding	(PS)
	37. Eye check on well being	(EY)
	38. Rocking	(RK)

VI. STIMULATION OF PHYSICAL DEVELOPMENT

39. Provides large muscle, kinesthetic stimulation (LM)

VII. CAREGIVING TASKS WITH ENVIRONMENT

40. Prepare menu and/or food (PMF)
41. Storing of food (STF)
42. Serving of food (SVF)
43. Vacuuming (VA)
44. Dusting (DST)
45. Sweeping (SWP)
46. Scrubbing and/or waxing floors (SCB)
47. Washing dishes (WD)
48. Laundry (LD)
49. Cleaning equipment (CE)
50. Cleaning toys (CT)
51. Cleaning cribs (CC)
52. Cleaning diapering tables (CDT)
53. Cleaning tables, seats, highchairs (CTS)
54. Safety checks (SC)
55. Repairing toys (RT)
56. Organize play area (OPA)
57. Provide stimulation activity (PSA)
58. Help other caregiver (HC)
59. Organize and/or modify work area (OMW)
60. Work related peer conversation (WPC)
61. First aid (FA)

VII. PARENTAL CONSIDERATIONS

62. During child's arrival (AR)
63. During child's departure (DP)
64. Parental visits (PV)

IX. ADMINISTRATION & BUSINESS MATTERS

65. General-clerical (GC)
66. Child-clerical (CC)
67. Mail, phone-incoming (MI)
68. Mail, phone-outgoing (MO)

X. PERSONAL NEEDS

69. Lavatory, phone, etc. (J)
70. Peer conversation (PC)
71. In-service education (INS)
72. Eating (ET)
73. Caregiver absent from environment (OUT)

OPERATIONAL DEFINITIONS

I. STIMULATION OF LANGUAGE DEVELOPMENT

1. Encourages Vocalization (V)

Score this item for any occurrence of caregiver vocalizing, uttering, babbling or talking directed to infants.

Examples of (V):

A. Caregiver babbles to infants
B. Caregiver imitates sounds of infants
C. Caregiver tickles infants trying to produce a response
D. Caregiver speaks to infants in other short question or statement form e.g. "You're hungry", "You want your diaper changed?"

2. Converses, chats with children (C)

Score this item for any occurrence of caregiver speaking with children where the children are observed to respond vocally, verbally, or physically.

Examples of (C):

Caregiver speaks with children in longer, more sophisticated sentences than (V), e.g., asks questions, makes statements, requests children to perform tasks.

3. Praises or encourages (P)

Score this item for any occurrence of caregiver praising or encouraging what the child can achieve and/or what the child has done.

Examples of (P)

A. Caregiver praises forms of language development e.g., "You sang so well just now, we can sing again later if you like."
B. Caregiver uses words of encouragement e.g., "I know you can walk further now. Come on, let's try."

4. Offers help (OH)

Score this item for any occurrence of caregiver offering help to the child, whether or not the child prompted the caregiver to do so.

Example of (ON):

Caregiver offers help to child in situations he/she cannot negotiate him/herself, e.g., "Would you like me to help you with that zipper?"

5. Gives explanations (EX)

Score this item for any occurrence of caregiver making explanatory statements to the children.

Example of (EX):

Caregiver gives a child an explanation for behaviors, situations, or happenings, e.g., "I'm mopping the floor because it's dirty."

Non scorable occurrence:

Caregiver's use of "Because." or "I said so." Score (RP)

6. Labels sensory experiences (LS)

Score this item for any occurrence of caregiver labeling sensory experiences for children.

Example of (LS):

"This water is cold.", "The soup is hot.", "It hurts when you fall."

7. Reads to children (RD)

Score this item for any occurrence of caregiver reading to children.

Example of (RD):

Caregiver reads from childrens books or magazines.

Non scorable occurrence:

Caregiver labels pictures in books or magazines without reading the print. Score (EX)

8. Sings with and/or to children (SG)

Score this item for any occurrence of caregiver singing with and/or to children.

Example of (SG):

Caregiver sings, hums, claps, taps hands and/or feet with or without musical accompaniment to and/or with children.

II. STIMULATION OF SOCIAL-EMOTIONAL DEVELOPMENT

9. Reinforces the use of adults as resources and/or socially acceptable ways to get and maintain the attention of adults. (A)

Examples of (A):

A. Responding with non-verbal attention to child's request to be watched during an activity.
B. Verbally praising a child after being prompted by the child to attend to the child's activity.
C. Accepting toys from a child who has offered them to the caregiver.
D. Responding to requests of assistance for physical help.

10. Affords and allows expression of both affection and hostility to Adults (AHA)

Score this item for any occurrence of caregiver affording and allowing expression of both affection and hostility to adults.

Examples of (AHA):

A. Caregiver responds positively (e.g. smiles, nods head approvingly, verbal praise, hugs, kisses back) to child's hugging, kissing, etc. toward adults.
B. Caregiver responds to child's hostile actions toward adults with verbal guidance (e.g. it's O.K. to be mad but it hurts when you hit me.)

11. Affords and allows expression of both affection and hostility to Peers (AHP)

Score this item for any occurrence of caregiver affording and allowing expression of both affection and hostility to peers.

Examples of (AHP):

A. Caregiver responds positively (e.g. smiles, nod head approvingly, verbal praise) to hugging and kissing among children.
B. Caregiver responds to child's hostile actions toward another child with verbal guidance (e.g. it's O.K. to be mad but when you hit people it hurts.)

12. Allows competition among peers (CP)

Score this item for any occurrence of caregiver allowing competition among peers.

Example of (CP):

Caregiver allows children to decide how toys will be distribu-

ted among the group. e.g., one bicycle among three children, one box of crayons among four children.

13. Encourages and reinforces self-praise and demonstration of pride in one's accomplishments (DE)

Score this item for any occurrence of caregiver encouraging, and/or reinforcing (e.g. verbal praise) self-praise and demonstration of pride in one's accomplishments.

Examples of (DE):

A. Caregiver imitates child's demonstration of pride (e.g. laughing, clapping, smiling.)
B. Caregiver echos child's words of self-praise.

14. Encourages and reinforces adult role playing behavior and/or the expression of the desire to grow-up. (ROP)

Examples of (ROP):

A. Caregiver positively reinforces (e.g. verbal praise, pats child on back) children's dress-up play.
B. Caregiver positively reinforces (e.g. verbal praise,pats child on back) children's imaginary play, as in driving a car, bus, flying a plane, going to the store, etc.

15. Imaginary Play Attempted (PA)

Score this item for any occurrence of caregiver attempting imaginary play.

Examples of (PA):

Caregiver imitates a monkey, trying to get children involved in a game without success.

16. Imaginary Play completed (PC)

Score this item for any occurrence of caregiver completing imaginary play.

Examples of (PC):

Caregiver imitates a monkey, trying to get children involved in a game without success.

III. STIMULATION OF SENSORIMOTOR DEVELOPMENT

17. Object permanence (OP)

Score this item for any occurrence of caregiver providing opportunities for development of object permanence.

Examples of (OP):

A. Caregiver encourages (with verbal prompts, and/or physical gestures e.g. smiling, head nodding) infant's eyd contact and following of an object through 180° of an arc.
B. Caregiver encourages (with verbal prompts and/or physical gestures e.g., smiling, head nodding) child to follow, seek and/or obtain objects partially hidden.
C. Caregiver encourages (with verbal prompts, and/or physical gestures e.g. smiling, head nodding) child to follow, seek and/or obtain completely hidden objects.
D. Caregiver encourages (with verbal prompts, and/or physical gestures e.g. smiling, head nodding) child to follow, seek and/or obtain an object hidden by one or more barriers.

18. Means and Ends (ME)

Score this item for any occurrence of caregiver providing opportunities for development of means and ends.

Examples of (ME):

A. Caregiver encourages (with verbal prompts, and/or physical gestures, e.g. smiling, head nodding) infant's hand watching.
B. Caregiver encourages (with verbal prompts and/or physical gestures, e.g. smiling, head nodding) infant's grasping with hand-and-object in view.
C. Caregiver encourages (with verbal prompts and/or physical gestures, e.g. smiling, head nodding) infant's use of locomotion as means.
D. Caregiver encourages (with verbal prompts and/or physical gestures, e.g. smiling, head nodding) infant's understanding of the relationship between a solid piece and stacked pieces.

19. Imitation (IM)

Score this item for any occurrence of caregiver providing opportunities for development of imitative behavior.

Examples of (IM):

A. Caregiver encourages (with verbal prompts and/or physical gestures e.g. smiling, head nodding) child's copying a familiar gesture as in waving bye, clapping hands.

B. Caregiver encourages (with verbal prompts and/or physical gestures e.g. smiling, head nodding) child's copying of familiar sounds as in babbling and beginning verbalization.

20. Causality (CA)

Score this item for any occurrence of caregiver providing opportunities for the understanding of causality concepts.

Examples of (CA):

A. Caregiver encourages (with verbal prompts and/or physical gestures e.g. smiling, head nodding) child's use of an object to obtain a result as in working with light switches, crayons, etc.
B. Caregiver encourages (with verbal prompts and/or physical gestures e.g. smiling, head nodding) child's actions that cause a different event as in peddling a bike to get around faster, or pushing a pull toy backwards to get a different sound.

21. Prehension (PR)

Score this item for any occurrence of caregiver providing opportunities for the development of prehension.

Examples of (PR):

A. Caregiver encourages (with verbal prompts and/or physical gestures e.g. smiling, head nodding) child's holding and handling of objects.
B. Caregiver encourages (with verbal prompts and/or physical gestures e.g. smiling, head nodding) child's use of manipulatives as in peg boards, stringing beads, puzzles, etc.
C. Caregiver massages and/or exercises child's wrists, hands, fingers, ankles, feet, toes.

22. Space (SP)

Score this item for any occurrence of caregiver providing opportunities for development of spatial concepts.

Examples of (SP):

A. Caregiver encourages (with verbal prompts and/or physical gestures e.g. smiling, head nodding) child's ear-eye coordination with sounds.
B. Caregiver encourages (with verbal prompts and/or physical gestures e.g. smiling, head nodding) child's awareness of the relationships of gravity and balance through the use of rockers, balance bars, etc.

C. Caregiver encourages (with verbal prompts and/or physical gestures e.g. smiling, head nodding) child's awareness of differing sizes, weights, heights, depths, through child's experimentation with different containers, substances like sand or mud and/or objects like blocks of various dimensions.

23. New Schemata (NS)

Score this item for any occurrence of caregiver providing opportunities for the development of new schemata.

Examples of (NS):

A. Caregiver encourages (with verbal prompts, and/or physical gestures, e.g. smiling, head nodding) child's visual inspection of objects.
B. Caregiver encourages (with verbal prompts and/or physical gestures e.g. smiling, head nodding) child's experimentation of put-together toys.

IV. STIMULATION OF SENSES

24. Sight (SI)

Score this item for any occurrence of caregiver deliberately stimulating the sense of sight.

Examples of (SI):

A. Drawing the child's attention to mobil.
B. Drawing child's attention to mirror images.

25. Hearing (HE)

Score this item for any occurrence of caregiver dilliberately stimulating the sense of hearing.

Examples of (HE):

A Record playing
B. ringing bells
C. Whispering in infant's ear

26. Touch (TO)

Score this item for any occurrence of caregiver deliberately stimulating the sense of touch.

Examples of (TO):

A. Providing child with objects of differing texture e.g. burlap,

silk etc.
B. Allowing child to touch objects of varying temperature e.g. ice, warm water.

27. Smell (SM)

Score this item for any occurrence of caregiver deliberately stimulating the sense of smell.
Examples of (SM):

A. Providing children with a variety of perfumes.
B. Providing children with a variety of powders

28. Taste (TA)

Score this item for any occurrence of caregiver deliberately stimulating the sense of taste.

Examples of (TA):

A. Provides children with a variety of foods to sample.
B. Allows children to experience varying degree of taste e.g. the sweetness of sugar and the sweetness of fruit.

Non-scorable occurrence of (TA): Routine Feeding score-(FD)

V. CAREGIVING TASKS WITH INFANTS

29. Feeding (FD)

Score this item for any occurrence of caregiver feeding children. Do not score if food is merely provided to the children and no manual feeding is performed by the caregiver.

Examples of (FD):

A. Bottle feeding to include burping infants.
B. Spoon feeding.

Non-scorable occurrence of (FD):

Caregiver provides child with finger foods, then proceeds to another activity. Score-(SVF)

30. Diaper checks (DC)

Score this item for any occurrence of caregiver checking for the need to change diapers.

Example of (DC):

Before putting the child to rest, caregiver does a physical check for diaper soiling.

31. Diapering, toileting (DT)

Score this item for any occurrence of caregiver engaging in diapering and/or toileting activities. Diapering includes undressing, cleansing, applying any necessary powders and/or creams, providing clean diaper, dressing, disposal of soiled diaper, and washing of caregiver's hands. Toileting will include undressing, placing child on toilet, cleansing, dressing, and washing of child and caregiver's hands.

32. Dressing, undressing (DR)

Score this item for any occurrence of caregiver dressing and/or undressing children.

Examples of (DR):

A. Taking off/putting on outer clothing.
B. Changing damaged clothing.

Non-scorable occurrence of (DR):

Dressing and/or undressing as a result of diapering or toileting. Score-(DT)

33. Washes, cleans-up (WH)

Score this item for any occurrence of caregiver washing/ cleaning child.

Example of (WH):

Washes child's hands and/or mouth.

Non-scorable occurrence of (WH):

Cleaning child during diapering or toileting process. Score-(DT)

34. Bathes (B)

Score this item for any occurrence of caregiver's engaging in bathing process, including drying and redressing.

35. Sleep (SL)

Score this item for any occurrence of caregiver placing or removing child from sleep area.

36. Physical shepherding (PS)

Score this item of any occurrence of physical contact between caregiver and child involving physically moving a child, including guiding, transporting, and holding child.

37. Eye checks on well being (EY)

Score this item for any occurrence of caregiver visually checking on childrens status.

Examples of (EY):

A. Caregiver surveys children in activities.
B. Caregiver surveys children in sleep areas.

38. Rocking (RK)

Score this item for any occurrence of caregiver rocking children.

VI. STIMULATION OF PHYSICAL DEVELOPMENT

39. Provides large muscle, kinesthetic stimulation (LM)

Score this item for any occurrence of caregiver providing large muscle stimulation.

Examples of (LM):

A. Walking
B. Running
C. Playground activities
D. Massaging and/or exercising infants back, shoulders, stomach.

VII. CAREGIVING TASKS WITH ENVIRONMENT

40. Prepare menu and/or food (PMF)

Score this item for any occurrence of caregiver preparing menu(s) and/or food for the children.

Examples of (PMF):

A. Writing or typing list of foods needed.
B. Writing or typing meal plans.
D. Opening cans, bottles, containers.

41. Storing of food (STF)

Score this item for any occurrence of caregiver storing food.

Examples of (STF):

A. Putting newly bought food away in cabinets.
B. Storing of unused portions of food.

42. Serving of food (SVF)

Score this item for any occurrence of caregiver serving food to children.

Non-scorable occurrence of (SVF):

Caregiver spoon or bottle feeding children. Score-(RD)

43. Vacuuming (VA)

Score this item for any occurrence of caregiver vacuuming.

44. Dusting (DST)

Score this item for any occurrence of caregiver dusting.

45. Sweeping (SWP)

Score this item for any occurrence of caregiver sweeping.

46. Scrubbing and/or waxing floors (SCB)

Score this item for any occurrence of caregiver scrubbing and/or waxing floors.

47. Washing dishes (WD)

Score this item for any occurrence of caregiver washing/drying dishes by hand or loading/unloading dish washer.

48. Laundry (LD)

Score this item for any occurrence of caregiver engaging in the laundry process.

Examples of (LD):

A. Collection and/or sorting of laundry
B. Loading, unloading of washers or dryers
C. Folding, ironing or putting away of laundry
D. Hand washing of laundry
E. Wringing out laundry and line drying

49. Cleaning equipment (CE)

Score this item for any occurrence of caregiver cleaning equipment and/or work surfaces.

Examples of (CE):

A. Cleaning counter tops
B. Coeaning of refrigerator, stove
C. Cleaning of pails, baskets, etc.

50. Cleaning toys (CT)

Score this item for any occurrence of caregiver cleaning toys.

51. Cleaning cribs (CC)

Score this item for any occurrence of caregiver cleaning cribs.

52. Cleaning diapering tables (CDT)

Score this item for any occurrence of caregiver cleaning diapering tables.

53. Cleaning tables, seats, highchairs (CTS)

Score this item for any occurrence of caregiver cleaning tables, seats, or highchairs.

54. Safety checks (SC)

Score this item for any occurrence of caregiver engaging in activities to insure the safety of the center.

Examples of (SC):

A. Testing balance of highchairs
B. Testing sturdiness of shelves
C. Checking outlets for caps
D. Practice fire, tornado drills

55. Repairing toys (RT)

Score this item for any occurrence of caregiver repairing toys.

56. Organize play area (OPA)

Score this item for any occurrence of caregiver organizing play area.

Examples of (OPA):

A. Putting toys back in original setting
B. Putting furniture back in original setting

57. Provide stimulation activity (PSA)

Score this item for any occurrence of caregiver providing stimulation activities.

Examples of (PSA):

A. Setting up and helping with art activity
B. Handing out individual games, toys

58. Help other caregivers (HC)

Score this item for any occurrence of caregiver helping another caregiver.

Example of (HC):

Assisting another caregiver in any routines: diapering, laundry, first aid, cleaning, etc.

59. Organize and/or modify work area (OMW)

Score this item for any occurrence of caregiver organizing and/or modifying work area.

Examples of (OMW):

A. Putting away dishes
B. Putting anything away - except: food-score-(STF), toys - score-(OPA), laundry - score-(LD)
C. Putting-up or taking-down of decorations e.g., children's art work, seasonal themes.

60. Work related peer conversation (WPC)

Score this item for any occurrence of caregiver engaging in verbal communication about a particular child, children in general, center operations or other topics that can educate or inform caregivers regarding child care.

Examples of (WPC):

A. Informing another caregiver of changes in regular routines.
B. Exchange of knowledge about a particular issue related to children, e.g., Kristen's new formula change, facts about infant/caregiver relationships as sighted in the literature, etc.

Non-scorable occurrence of (WPC):

Conservation about personal and/or social experiences not related to children or the center. Score-(PC)

61. First aid (FA)

Score this item for any occurrence of caregiver administering first aid to children or another caregiver.

Examples of (FA):

A. Caregiver applies bandage to a wound
B. Caregiver repairs a child's broken glasses

VIII. PARENTAL CONSIDERATION

62. During child's arrival (AR)

Score this item for any occurrence of caregiver/parent interaction during child's arrival.

Examples of (AR):

A. Receiving information on child
B. Talking to parents
C. Answering questions

63. During child's departure (DP)

Score this item for any occurrence of caregiver/parent interaction during child's departure.

Examples of (DP):

A. Exchange of information about child
B. Talking to parents
C. Answering questions

64. Parental Visits (PV)

Score this item for any occurrence of caregiver/parent interaction during parent's visit at center.

Examples of (PV):

A. Exchange of information about their child, children in general, or center operation.
B. Personal conversation

Non-scorable occurrence of (PV):

Caregiver/parent interaction during child's arrival Score-(AR) or during child's departure - score-(DP)

IX. ADMINISTRATION AND BUSINESS DETAILS

65. General-clerical (GC)

Score this item for any occurrence of caregiver activities involving business transactions.

Examples of (GC):

A. Recording and issuing of receipts of tuition payments
B. Payment of expenses
C. Petty cash fund

66. Child-clerical (CC)

Score this item for any occurrence of caregiver documenting child's activities.

Examples of (CC):

A. Documentation of food eaten
B. Use of checklist of activities
C. Labeling art work

67. Mail, phone-incoming (MI)

Score this item for any occurrence of caregiver attending to incoming phone calls or mail deliveries.

Examples of (MI):

A. Sort and read mail
B. Answering phone calls
C. Accepting delivery of supplies, food, etc.

68. Mail, phone-outgoing (MO)

Score this item for any occurrence of caregiver attending to outgoing phone calls or mail deliveries.

Examples of (MO):

A. Outgoing business calls
B. Drafting, typing, duplicating, parent news letters.

X. PERSONAL NEEDS

69. Lavatory, phone calls etc. (J)

Score this item for any occurrence of caregiver activities directed to satisfying personal needs; time and energy not directed toward children.

Examples of (J):

A. Caregiver uses lavatory
B. Caregiver uses phone
C. Caregiver puts on/takes off garments
C. Caregiver washes hands, applies lotion, combs hair, etc.

Non-scorable occurrence of (J):
Hand washing to complete diapering task. Score-(DP)

70. Peer conversation (PC)

Score this item for any occurrence of caregivers engaging in verbal communication, not related to work activities, such as personal and/or social experiences.

Examples of (PC):

A. Talk about off-hours social activities
B. Talk about personal problems

Non-scorable occurrence of (PC):

Conversation about a particular child, children in general, center operations or other topics that can educate or inform caregivers on child/caregiver interactions. Score-(WPC)

71. In-service education (INS)

Score this item for any occurrence of caregivers exchanging knowledge of methods or techniques related to child care.

Example of (INS):

Head caregiver demonstrating activities to trainees.

72. Eating (ET)

Score this item for any occurrence of caregiver eating.

Examples of (ET):

A. Breakfast

B. Lunch
C. Snacks

73. Caregiver absent from environment (OUT)